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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009.070	12/07/2001	Hiroshi Ito	U 013765-3	4295

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NEW YORK, NY 10023

EXAMINER

FAISON, VERONICA F

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 12/23/2003

Office Action Summary

Application No.

10/009,070

Applicant(s)

ITO ET AL.

Examiner

Veronica F. Faison

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28,31 and 32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28,31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7,8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Claim 31 has been amended and claims 29 and 30 have been canceled. Hence, claims 1-28 and 31-32 are pending in the application.

Response to Arguments

Applicant's arguments with respect to claims 1-28 and 31-32 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-5 and 9-12 are rejected under 35 U.S.C. 102(a) as being anticipated by Hayashi (EP 1 041 127 A1).

Hayashi teach and ink composition comprising at least a pigment, a 1,2-alkanediol, glycerin (Applicant's humectant described on page 20 line 32 of specification), a polyhydric alcohol derivative and/or an acetylene glycol surfactant, a water-soluble organic solvent and water (abstract and page 3 lines 10-17). The 1,2-alkanediol may be selected from the group consisting of 1,2-butanediol, 1,2-pentanediol and 1,2-hexanediol that may be present in the ink composition in the amount of about 0.5 to 30 percent by weight (page 4 lines 6-26). The pigment may be present in the

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amount of about 0.5 to 15 percent by weight (page 5 lines 1-2). The polyhydric alcohol present in the ink composition may be select polyhydric alcohol derivative such as diethylene glycol mono-n-butyl ether and propylene glycol mono-n-butyl ether in the amount from about 3 to 30 percent by weight (page 5 lines 10-17). The acetylene glycol surfactant may be present in the amount from about 0.1 to 3 percent by weight wherein the compound may be selected from 3,5-dimethyl-1-hexyn-3-ol (page 5 lines 22-55). The water-soluble organic solvents are present in the amount of about 1 to 30 percent by weight (page 6 lines 1-13). The ink composition preferably has a pH in the range of 7 to 11 (page 6 lines 22-23). The reference discloses that other optional additives such as preservative, pH adjustors and nozzle clogging preventives may be present in the ink composition (page 7 lines 31-36). The reference also teaches a dye containing ink composition (page 9 lines 32-33). The dye containing ink may have a glycol ether such as diethylene glycol mono-n-butyl ether present. The ink may further comprise other organic solvents such as diols (page 9 line 57-page 10 line 9). The acetylene glycol surfactant may also be present in the dye containing ink composition (page 10 lines 13-51). The reference also discloses an ink jet recording method and ink jet recording apparatus (page 8 lines 22-54 and in the claims).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6, 23-28, and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (EP 1 041 127).

Hayashi teaches a dye containing ink composition (page 9 lines 32-33). The dye containing ink may have a glycol ether such as diethylene glycol mono-n-butyl ether present. The ink may further comprise other organic solvents such as diols (page 9 line 57-page 10 line 9). The acetylene glycol surfactant may also be present in the dye containing ink composition (page 10 lines 13-51). The reference also discloses an ink jet recording method and ink jet recording apparatus (page 8 lines 22-54 and in the claims). The reference fails to specifically exemplify the use of a dye in combination with glycol monoether as claimed by applicant. Therefore, it would have been obvious to one of ordinary skill in the art to use the dye in combination with glycol monoether as claimed by applicant as Hayashi also discloses the use of dye in combination with glycol monoether but shows no example incorporating them.

Claims 7, 8, 13 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (EP 1 041 127) in view of Rehman (US Patent 6,187,086 B1).

Hayashi teaches an ink composition comprising at least a pigment, a 1,2-alkanediol, glycerin (Applicant's humectant described on page 20 line 32 of specification), a polyhydric alcohol derivative and/or an acetylene glycol surfactant, a water-soluble organic solvent and water (abstract and page 3 lines 10-17). The 1,2-alkanediol may be selected from the group consisting of 1,2-butanediol, 1,2-pentanediol and 1,2-hexanediol that may be present in the ink composition in the amount of about 0.5 to 30 percent by weight (page 4 lines 6-26). The pigment may be present in the amount of about 0.5 to 15 percent by weight (page 5 lines 1-2). The polyhydric alcohol present in the ink composition may be selected polyhydric alcohol derivative such as diethylene glycol mono-n-butyl ether and propylene glycol mono-n-butyl ether in the amount from about 3 to 30 percent by weight (page 5 lines 10-17). The acetylene glycol surfactant may be present in the amount from about 0.1 to 3 percent by weight wherein the compound may be selected from 3,5-dimethyl-1-hexyn-3-ol (page 5 lines 22-55). The water-soluble organic solvents are present in the amount of about 1 to 30 percent by weight (page 6 lines 1-13). The ink composition preferably has a pH in the range of 7 to 11 (page 6 lines 22-23). The reference discloses that other optional additives such as preservative, pH adjustors and nozzle clogging preventives may be present in the ink composition (page 7 lines 31-36). The reference fails to teach a pigment and dispersant.

Rehman teaches an ink composition comprising a pigment and a vehicle, wherein the pigment may be a self-dispersing pigment or pigment and dispersant (col. 2 line 43-col. 3 line 59).

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have replaced self-dispersant with a pigment and dispersant because the substitution of art recognized equivalents as shown by Rehman would have been within the level of ordinary skill in the art.

Claims 14, 15, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi (EP 1 041 127) in view of Rehman (US Patent 6,187,086) as applied to claims 7, 8, 13 and 16-20 above, and further in view of Kashiwazaki et al.

Hayashi and Rehman are described above, but fail to teach a dispersant with an acid value 70 to 200 and the structure set forth in claim 22.

Kashiwazaki et al teach a water-based pigment ink comprising water, a water-soluble organic solvent and an aqueous pigment dispersion (abstract and col. 2 lines 13-29). The reference further teaches that the dispersant may include copolymers composed of at least one of hydrophobic monomers such as styrene and vinyl naphthalenes and at least one hydrophilic monomers such as acrylic acid, methacrylic acid and maleic acid. The copolymer may have any structure of random, block and graft copolymers, and their acid values range from 100 to 430 (col. 6 line 57-col. 7 line 5). The water-soluble organic solvents taught by the reference include 1, 2-butanediol, ethylene glycol monoalkyl ether and 1,2-cyclohexanediol which may be used in the amount of 5 to 40 percent by weight (col. 7 line 42-col. 30). Therefore, it

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would be obvious to one of ordinary skill in the art to use the dispersant taught by Kashiwazaki et al in the ink composition of Hayashi as Kashiwazaki et al taught that the dispersant disclosed above may be used with 1,2-diols which are present in Hayashi.

Claims 1-7, 9-13, 16-19, 23-27, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yatake (US Patent 6,004,389) in view of Deardurff et al (US Patent 5,858,075).

Yatake teaches an ink composition comprising a pigment dispersible and /or soluble in water, glycol ether selected from the group consisting of diethylene glycol mono-n-butyl ether, triethylene glycol mono-n-butyl ether, propylene glycol mono-n-butyl ether and dipropylene glycol mono-n-butyl ether (abstract and col. 2 lines 28-36). The reference further teaches that diols and glycols (humectants) such as 1,4-butanediol, 1,5-pentanediol and 1,6-hexanediol in the amount of 3 to 25 percent by weight (col. 4 lines 16-23 and 42-63). An acetylene glycol surfactant may be present in the amount of 0.1 to 5 percent by weight in the ink composition (col. 4 lines 24-36). Yatake also teaches that the ink composition may further comprise a dye to improve the color development (col. 6 lines 34+). A surfactant and/or a regulated polymerization type water-soluble resin may further be added to the ink composition to further accelerate or stabilize the dispersion of the pigment (col. 15 lines 13-35). Yatake appears to have the same ratio of glycol ether to the alkanediol. The reference discloses ink jet method wherein the ink is ejected and deposited on a recording medium (col. 18 line 65+). Yatake fails to teach the use of 1,2-alkanediol.

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Deardurff et al teaches an ink jet composition wherein the organic solvent may be selected from butanediol (e.g. 1,2-butanediol and 1,4-butanediol), pentanediol (e.g. 1,2-pentanediol and 1,5-pentanediol) and hexanediol (e.g. 1,2-hexanediol and 1,6-hexanediol).

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have replaced 1,4-butanediol, 1,5-pentanediol and 1,6-hexanediol with 1,2-butanediol, 1,2-pentanediol and 1,2-hexanediol because the substitution of art recognized equivalents as shown by Deardurff et al would have been within the level of ordinary skill in the art.

Conclusion

The remaining references listed on form 1449 have been reviewed by the Examiner and are considered to be cumulative to or less material than the prior art references relied upon in the above rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Veronica F. Faison whose telephone number is 703-305-3918. The examiner can normally be reached on Monday-Thursday and alternate Fridays 8 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on 703-308-3823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

After the move to new USPTO headquarters in Alexandria, VA, tentatively scheduled for the week of December 22, 2003, the Examiner's new phone number will be (571) 272-1366 and Mr. Bell's new phone number will be (571) 272-1362.

Veronica F. Faison


C. MELISSA KOSLOW
PRIMARY EXAMINER